

REMARKS

Claims 1-4 are pending. By this Response, claims 3 and 4 are added. Reconsideration and allowance based on the below comments are respectfully requested.

The Examiner rejects claim 1 under 35 U.S.C. §102(b) as being anticipated by Sakai (JP 07-029513) in claim 2 under 35 U.S.C. §103(a) as being unpatentable over Sakai in view of Osinga (U.S. Patent No. 4,484,166). These rejections are respectfully traversed.

In regard to the §102 rejection of claim 1, applicants note that the rejection under 35 U.S.C. §102 requires that each and every element of the claimed combination be disclosed within the reference. In claim 1, applicants recite “wherein said second guide groove and third guide groove have a width in a range of 1 to 1.5 times a diameter of said conductor”. The Examiner alleges that the disclosure of the width of the winding groove 30 being selected to coincide “almost” with the width W_b in Sakai is the same as applicants’ range of width for the grooves. Applicants respectfully disagree.

Applicants respectfully submit that the word “almost” does not provide sufficient specificity to constitute an anticipation of the claimed range. MPEP 2131.03 states that when “the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples fall within the claimed range are disclosed, a case by case determination must be made as to

anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the references within “sufficient specificity to constitute an anticipation under the statute.” In Sakai the term “almost” is vague and unresponsive. It is an immeasurable term and does not provide sufficient specificity to anticipate applicants’ claimed range. Accordingly, withdrawal of the rejection under 35 U.S.C. §102 is respectfully requested.

Further, the rejection of claim 2 which is dependent upon the rejection of claim 1 is overcome by the improper rejection applied to claim 1.

Furthermore, Sakai fails to teach the claimed feature of “first guide grooves formed in an inner surface of said coil bobbin and extending across the front end portion and the rear end portion” as recited in claim 1. In Sakai, the ribs on the inner surface of the coil bobbin (32) are formed in two segments and do not extend across the inner surface from the front to the rear. The rib (32) of Sakai is formed of rib segment 32a formed at the front of the coil bobbin and rib segment 32b formed at the rear of the coil bobbin. See paragraph 19 of Sakai. In fact, paragraph 19 of Sakai explicitly states that “the rib 32 is not formed to extend across the entire length of the groove 30” (a partial translation of Sakai is provided with this Response). Thus, Sakai fails to teach each and every feature of the claimed invention.

Furthermore, Osinga fails to make up for the deficiencies of Sakai. Therefore, in view of the above applicants respectfully submit that Sakai fails to

anticipate the claimed features. Accordingly, reconsideration and withdrawal of the rejection of claims 1 and 2 are respectfully requested.

CONCLUSION


For at least these reasons, it is respectfully submitted that claims 1-4 are distinguishable over the cited references. Favorable consideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further is necessary in order to place this application in condition for allowance, the Examiner is invited to contact applicant's representative at the number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. 1.16 or under 37 C.F.R. 1.17; particularly, extension of time fees.

Respectfully submitted,

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Partial translation of the Sakai reference (Japanese Patent laid
Open No. 7-29513)

(This translation reflects the amendment submitted on October
13, 1994)

[0014]

As shown in Fig. 6, the groove 30 has a thick wall that defines the bottom surface 40, and the multi-wire conductor 29 can be mounted in intimate contact with the bottom surface 40 in the groove 30.

[0015]

[Embodiment]

A horizontal deflection device according to the invention, particularly a separator around which a coil is wound, will be described in detail with reference to the drawings.

[0016]

Fig. 1 illustrates an example of a separator 12 when the horizontal deflection coil has been mounted on the separator 12. The separator 12 has a saddle shape with a lower bend portion 26 closer to a neck 16 of a CRT neck and an upper bend portion 28 closer to a funnel (not shown) of the CRT. The separator 12 is shaped such that an inner surface 14 is in intimate contact with the outer surface of the CRT.

[0017]

The separator 12 has a plurality of grooves (or slits) 30 disposed symmetrically with respect to a center line P (Fig. 2). The grooves 30 guide the turns of wires that form the horizontal deflection coil. In the embodiment, as shown in Fig. 2, seven grooves 30 are formed in the upper bend portion 28 and five grooves 30 in the lower bend portion 26. The wire begins from the upper bend portion 28 and part of the wire is merged into the groove 30 formed in the lower bend portion 26.

[0018]

Each of a plurality of grooves 30 has a width W_a somewhat large than the width W_b of a multi-wire conductor 29 of a flattened shape shown in Figs. 10 and 11. Therefore, each groove 30 has a width just enough to receive one multi-wire conductor 29 therein, the width allowing the turns of the multi-wire conductor 29 to be uniformly regularly routed.

[0019]

There are provided ribs 32 that define the plurality of grooves 30. As shown in Fig. 1 and 2, the rib 32 is not formed to extend across the entire length of the groove 30. Instead, a relatively short rib 32a is formed on the upper bend portion side and a relatively long rib 32b is formed on the lower bend portion side.

[0020]

As shown in Fig. 3, the tip of the rib 32a is oriented somewhat inwardly (rightward in Fig. 3), allowing the multi-wire conductor 29 to be bent smoothly into the groove 30. This structure allows the multi-wire conductor 29 to be wound in such a way that the multi-wire conductor 29 is in intimate contact with the bottom surface 40 of the groove 30 even when the multi-wire conductor 29 is bent by about 90 degrees.

[0021]

As shown in Fig. 3, the tip of the rib 32b is also oriented somewhat inwardly, preventing the multi-wire conductor 29 from climbing out of the groove 30 so that the conductor 29 is routed along the inner shape of the separator 12.

[0022]

Referring to Fig. 3, the rib 32 has low portions c between the ribs 32a and the ribs 32b, the low portions c being formed at an outer portion of the separator 12 and protruding slightly from the bottom surface 40 so as to direct the multi-wire conductor 29. Portions d are formed between the ribs 32a and the ribs 32b. Particularly two portions d formed at an inner portion of the separator 12 are flush with the bottom surface 40. This structure is so designed to allow the seven grooves 30 formed on the upper bend portion side to merge the five grooves 30 formed on the lower bend portion side. Therefore, the two grooves on the inner side of the separator 12 merge to allow the multi-wire conductor 29 can be properly wound on the separator 12.

[0023]

As mentioned above, the turns of the multi-wire conductor 29 can be merged by cutting away a part of the rib 32 that defines adjacent grooves 30. Thus, an optimum distribution of the magnetic field within the CRT, produced by the current flowing

through the horizontal deflection coil, can be adjusted by simply adjusting the manner in which the multi-wire conductors merge in the groove 30. This eliminates a complex adjusting procedure.

[0024]

The grooves 30 are disclosed symmetrically with respect to the center line P. Therefore, the multi-wire conductor 29 is wound, as shown in Fig. 4, on the lower bend portion i.e., the neck portion of the CRT side. Thus, the multi-wire conductor 29 can be wound on the separator 12 uniformly without variations between the turns of the horizontal deflection coil.

[0025]

Fig. 5 is a simplified illustration of the relation between the upper and lower ribs 32a and 32b. Fig. 6 is a fragmentary cross-sectional view of Fig. 5. As is clear from Fig. 6, the groove 30 has an inclined thick bottom wall. The bottom surface 40 of the groove 30 makes an angle with an X-axis and extends toward a Y-axis. The angle is in the range of 30 to 60 degrees and preferably about 45 degrees in most cases.

[0026]

The aforementioned angle is necessary for winding the multi-wire conductor 29 in intimate contact with the bottom surface 40 and the aforementioned range of angle was found appropriate. Experiment revealed that an angle of about 45 degrees was an optimum value.

[0027]

As shown in Fig. 7, the lower bend portion 26 has a width W_c , which is equal to or slightly larger than the width W_b of the multi-wire conductor 29. The upper bend portion 28 has a width, which is a multiple of the width W_b of the multi-wire conductor 29. For an example shown in Fig. 7, the upper bend portion 28 includes a separator wall 28a that divides the upper bend portion 28 in half, so that each half has a width W_d equal to or slightly larger than the width W_b of the multi-wire conductor 29.

[0028]

The multi-wire conductor 29 can be wound regularly and orderly in the upper and lower bend portions by selecting the widths of the upper and lower bend portions 26 and 28 in the

aforementioned relation. There will be no possibility of the multi-wire conductor being subjected to the shorting of the wires, climbing out of the bend portion, and being too high in the bend portion.

[0029]

The upper and lower bend portions 26 and 28 may have a width that is a multiple (two or greater) of the width W_b of the multi-wire conductor 29 of a flattened shape. Even when the widths of the upper and lower bend portions 26 and 28 have a width that is a multiple of the width W_b , the conductor 29 can be mounted on the separator 12. While the embodiment has been described with respect to a horizontal deflection apparatus, it is apparent that the invention may also be applied to a vertical deflection apparatus.

Note: The description of Paragraph [0022] of the original text of Japanese Patent laid Open No. 7-29513 does not appear to have described in an enabling manner.

We understand the paragraph as follows:

[0022] Referring to Fig. 3, the rib 32 has low portions c and low portions d between the rib 32a and the rib 32b. The low portion d is formed at an outer portion of the separator 12 and has a height much lower than other portions of the ribs 32a and 32b, which is still enough to properly guide the multi-wire conductor 29. At the low portions d, particularly two low portions d formed at an inner portion of the separator 12, the rib is absent so that the bottom surfaces 40 of the adjacent grooves are the same height. This structure is so designed to allow the seven grooves 30 formed on the upper bend portion side to merge the five grooves 30 formed on the lower bend portion side. Therefore, the two grooves on the inner side of the separator 12 merge to allow the multi-wire conductor 29 can be properly wound on the separator 12.